CE EMC

TEST REPORT

For

External USB Floppy Disk Drive

Trade Name / Model
MOVING STAR / USBFL-BK
Connectland / LECT-DISK-EXT-USB

Issued to

COMING DATA CO., LTD.
5F-1 No13, WU CHUNG 1RD, HSIN CHUNG CITY,
TAIPEI HSIEN, TAIWAN

Issued by

Compliance Certification Services Inc.
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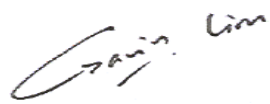
1 TEST RESULT CERTIFICATION

Applicant:	COMING DATA CO., LTD. 5F-1 No13, WU CHUNG 1RD, HSIN CHUNG CITY, TAIPEI HSIEN, TAIWAN
Manufacturer:	Powsun Electronic Co., Ltd. Zhu-Wu Yulianwe, Ching Shi Town, Dong Guan City, Guong Dong, China
Equipment Under Test:	External USB Floppy Disk Drive
Trade Name / Model:	MOVING STAR / USBFL-BK Connectland / LECT-DISK-EXT-USB
Detailed EUT Description:	See Item 2 of this report
Date of Test:	March 23 ~ 29, 2006

Applicable Standard	Class/Limit/Criterion	Test Result
EN 55022: 1998 + A1: 2000 + A2: 2003	Class B	No non-compliance noted
EN 61000-3-2: 2000	Class D	No non-compliance noted
EN 61000-3-3: 1995 + A1: 2001	Limit	No non-compliance noted
EN 55024: 1998 + A1: 2001 + A2: 2003, including		
IEC 61000-4-2:1995 + A1: 1998 + A2: 2000	Criterion B	No non-compliance noted
IEC 61000-4-3:2002 + A1: 2002	Criterion A	No non-compliance noted
IEC 61000-4-4:1995 + A1: 2000 + A2: 2001	Criterion B	No non-compliance noted
IEC 61000-4-5:1995 + A1: 2000	Criterion B	No non-compliance noted
IEC 61000-4-6:1996 + A1: 2000	Criterion A	No non-compliance noted
IEC 61000-4-8:1993 + A1: 2000	Criterion A	No non-compliance noted
IEC 61000-4-11:1994 + A1: 2000	Criterion B/C/C	No non-compliance noted
Deviation from Applicable Standard		
None		

The above equipment was tested by Compliance Certification Services Inc. for compliance with the requirements set forth in the EMC Directive 89/336/EEC, Amended by 92/31/EEC and 93/68/EEC and the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Approved by:



Gavin Lim
Section Manager
Compliance Certification Services Inc.

Reviewed by:

Amanda Wu
Section Manager
Compliance Certification Services Inc.

2 EUT DESCRIPTION

Product	External USB Floppy Disk Drive
Trade Name / Model Number	MOVING STAR / USBFL-BK Connectland / LECT-DISK-EXT-USB
Model Discrepancy	Both of the above models are identical except for the designation of trade names and model numbers.
Housing Type	Plastic
Power Supply	Vdc from USB Port of Host PC
USB Cable Type	Shielded, 1m (Non-detachable) with a core

I/O Port of EUT

I/O PORT TYPES	Q'TY	TESTED WITH
1) USB Port	1	1

3 TEST METHODOLOGY

3.1 EUT SYSTEM OPERATION

1. Insert the EUT to Host PC.
2. EMI test program was loaded and executed in "Windows XP" mode.
3. EUT read and wrote from Host PC.
4. Data was sent to monitor and filling the screens with upper case of "H" patterns.
5. The EMI test program sequentially exercised all related I/O's and accessories of Host PC.
6. Repeat 3 to 5.

Note: *Test program is self-repeating throughout the test.*

3.2 DECISION OF FINAL TEST MODE

1. The following test mode was scanned during the preliminary test:

Mode 1
Data Transmit

2. After the preliminary scan, the following test mode was found to produce the highest emission level.

Mode 1

Then, the EUT configuration and cable configuration of the above highest emission mode was chosen for all final test items.

4 INSTRUMENT AND CALIBRATION

4.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2 TEST AND MEASUREMENT EQUIPMENT

The following list contains measurement equipment used for testing. The equipment conforms to the requirement of CISPR 16-1, ANSI C63.2 and other required standards.

Calibration of all test and measurement, including any accessories that may effect such calibration, is checked frequently to ensure the accuracy. Adjustments are made and correction factors are applied in accordance with the instructions contained in the respective manual.

Equipment Used for Emission Measurement

Open Area Test Site # 3				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
EMI Test Receiver	R&S	ESVS20	838804/004	01/08/2007
Spectrum Analyzer	R&S	FSP30	100112	09/23/2006
Spectrum Analyzer	Agilent	E4446A	MY43360131	01/10/2007
Pre-Amplifier	MITEC	AFS42-00102650	924206	N.C.R.
Pre-Amplifier	MITEC	AMF-6F-260400	945377	N.C.R.
Bilog Antenna	SCHWAZBECK	VULB9163	145	07/05/2006
Horn Antenna	EMCO	3115	00022250	04/18/2006
Horn-Antenna	TRC	HA-1201A	02	07/04/2006
Horn-Antenna	TRC	HA-1301A	02	07/04/2006
Turn Table	EMCO	2081-1.21	9709-1885	N.C.R.
Antenna Tower	EMCO	2075-2	9707-2060	N.C.R.
Controller	EMCO	2090	9709-1256	N.C.R.
RF Switch	ANRITSU	MP59B	M53867	N.C.R.
Site NSA	C&C	N/A	N/A	09/06/2006

Remark: *The measurement uncertainty is less than +/- 2.16dB, which is evaluated as per the NAMAS NIS 81 and CISPR/A/291/CDV.*

Powerline Conducted Emission				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
EMI TEST RECEIVER 9kHz-30MHz	ROHDE & SCHWARZ	ESHS30	828144/003	09/27/2006
TWO-LINE V-NETWORK 9kHz-30MHz	SCHAFFNER	NNB41	03/10013	06/12/2006
LISN 10kHz-100MHz	EMCO	3825/2	9106-1809	02/17/2007
ISN	FCC	FCC-TLISN-T8-02	20168	07/15/2006
Test S/W	LABVIEW (V 6.1)			

Remark: *The measurement uncertainty is less than +/- 2.81dB, which is evaluated as per the NAMAS NIS 81 and CISPR/A/291/CDV.*

Power Harmonic & Voltage Fluctuation/Flicker Measurement (EN 61000-3-2&-3-3)				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Harmonic & Flicker Tester	EMC-PARTNER	HARMONICS-1000	094	10/26/2006
Test S/W	HARCS (Ver. 4.0)			

Equipment Used for Immunity Measurement

ESD Test Site (IEC/EN 61000-4-2)				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
ESD Simulator	NoiseKen	ESS-2001	ESS0210582	09/13/2006

Radiated Electromagnetic Field Immunity Test Site (IEC/EN 61000-4-3)				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Signal Generator	Agilent	8648C	4108A05772	09/12/2006
150 Watts 80-1000MHz Amplifier	Amplifier Research	150W1000M3	306730	N.C.R.
30 Watts 0.8-3.0GHz Amplifier	Amplifier Research	30S1G3M1	306722	N.C.R.
Power Meter	Boonton	4232A-01-02	98501	09/14/2006
Power Sensor	Boonton	51011-EMC	32920	09/07/2006
Power Sensor	Boonton	51011-EMC	32863	09/14/2006
Log-Periodic Antenna	Amplifier Research	AT1080	306709	N.C.R.
Microwave Horn Antenna	Amplifier Research	AT4002A	306750	N.C.R.
6 MHz Sweep/Function Generator	AMREL	FG-506	50608090006	05/18/2006
RF Test System Controller	Amplifier Research	SC1000M3	306666	N.C.R.
Field Probe	Amplifier Research	FP6001	305657	03/17/2007
0.8-4.2GHz	Amplifier Research	DC7144A	N/A	N.C.R.
80-1000MHz	Amplifier Research	DC6180A	N/A	N.C.R.
Antenna Tower	Amplifier Research	TP2000	N/A	N.C.R.
Probe Stand	Amplifier Research	PS2000	N/A	N.C.R.
Test S/W	SW1005 (Release 1.4)			

Fast Transients/Burst Test Site (IEC/EN 61000-4-4)				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
ECAT Control Center	KeyTek	E-Class Series 100	9502325	10/12/2006
Capacitor Clamp	KeyTek	CCL-4	9503290	N.C.R.
Test S/W	E400 Burstware (V4.19 (c))			

Surge Immunity Test Site (IEC/EN EN 61000-4-5)				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
ECAT Control Center	KeyTek	E-Class Series 100	9502325	10/12/2006
External Coupler / Decoupler For Telecom Lines	KeyTek	CM-TELCD	0104399	N.C.R
I/O Signal Line Coupler / Decoupler	KeyTek	CM-I / OCD	0103234	N.C.R
Test S/W	E500 Surgeware (V4.19cc)			

CS Test Site (IEC/EN 61000-4-6)				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Signal Generator	Agilent	8648C	4108A05773	09/08/2006
75 Watts 10kHz-250MHz Amplifier	Amplifier Research	75A250AM1	306334	N.C.R.
Power Meter	Boonton	4232A-01-02	98601	09/07/2006
Power Sensor	Boonton	51011-EMC	32862	09/07/2006
Power Sensor	Boonton	51011-EMC	32864	09/07/2006
Power Line Coupling Decoupling Network	Fischer Custom Communications, Inc.	FCC-801-M1-32A	03018	09/08/2006
Power Line Coupling Decoupling Network	Fischer Custom Communications, Inc.	FCC-801-M2-16A	03026	09/08/2006
Power Line Coupling Decoupling Network	Fischer Custom Communications, Inc.	FCC-801-M3-16A	03027	09/08/2006
Signal Line Coupling Decoupling Network	Fischer Custom Communications, Inc.	FCC-801-T2	03016	09/07/2006
Signal Line Coupling Decoupling Network	Fischer Custom Communications, Inc.	FCC-801-T4	03017	09/08/2006
EM Injection Clamp	Fischer Custom Communications, Inc.	F-203I-23mm	421	09/08/2006
Passive Impedance Adapters	Fischer Custom Communications, Inc.	FCC-801-150-50-CDN	03053&03054	09/08/2006
Calibration Fixture	Fischer Custom Communications, Inc.	F-203I-CF-23mm	408	09/08/2006
Signal Line Coupling Decoupling Network	Fischer Custom Communications, Inc.	FCC-801-T8-RJ45	04024	09/08/2006
Attenuator	Amplifier Research	HFP-575-3/6-NM	NF201875106	N.C.R.
Coupler	Amplifier Research	DC2600A	306621	N.C.R.
Test S/W	SW1005 (Release 1.4)			

Power Frequency Magnetic Field Immunity Test Site (IEC/EN 61000-4-8)				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Magnetic Field Tester	HAEFELY TRENCH	MAG100.1	081436-02	N.C.R.
Frequency Converter	Extech Electronics	CFC-105	810390	N.C.R.
Digital Multimeter	DHA	CM-312A	ET93C-06-208-01	06/13/2006
EMF Tester Electromagnetic Field	TES	1390	020401598	12/23/2006

Voltage Dips/Short Interruption and Voltage Variation Immunity Test Site (IEC/EN 61000-4-11)				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
Dips/Interruption and Variations Simulator	HAEFELY TRENCH	PLINE 1610	080 344-05	04/07/2007
Test S/W	WinPATS (V. 3.26)			

5 FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

☐ No.199, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.
Tel: 886-2-2217-0894 / Fax: 886-2-2217-1029

☒ No.11, Wugong 6th Rd., Wugu Industrial Park, Taipei Hsien 248, Taiwan
Tel: 886-2-2299-9720 / Fax: 886-2-2298-4045

☒ No.81-1, Lane 210, Bade 2nd Rd., Luchu Hsiang, Taoyuan Hsien 338, Taiwan
Tel: 886-3-324-0332 / Fax: 886-3-324-5235

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

5.2 LABORATORY ACCREDITATIONS AND LISTINGS

The test facilities used to perform Electromagnetic compatibility tests are registered or accredited by the organizations listed in the following table which includes the recognized scope specifically.

Country	Agency	Scope of Accreditation	Logo
USA	A2LA	EN 55011, EN 55014-1/2, CISPR 11, CISPR 14-1/2, EN 55022, EN 55015, CISPR 22, CISPR 15, AS/NZS 3548, VCCI V3 (2001), CFR 47, FCC Part 15/18, CNS 13783-1, CNS 13439, CNS 13438, CNS 13803, CNS 14115, EN 55024, IEC 801-2, IEC 801-3, IEC 801-4, IEC/EN 61000-3-2, EIC/EN 61000-3-3, IEC/EN 61000-4-2/3/4/5/6/8/11, EN 50081-1/ EN 61000-6-3, EN 50081-2/EN 61000-6-4, EN 50081-2/EN 61000-6-1: 2001	ACCREDITED 0824-01
USA	FCC	3/10 meter Open Area Test Sites (93105, 90471) / 3M Semi Anechoic Chamber (965860) to perform FCC Part 15/18 measurements	93105, 90471 965860
Japan	VCCI	3/10 meter Open Area Test Sites to perform conducted/radiated measurements	R-393/1066/725/879 C-402/747/912
Norway	NEMKO	EN 50081-1/2, EN 50082-1/2, IEC 61000-6-1/2, EN 50091-2, EN 50130-4, EN 55011, EN 55013, EN 55014-1/2, EN 55015, EN 55022, EN 55024, EN 61000-3-2/3, EN 61326-1, IEC 61000-4-2/3/4/5/6/8/11, EN 60601-1-2, EN 300 328, EN 300 422-2, EN 301 419-1, EN 301 489-01/03/07/08/09/17, EN 301 419-2/3, EN 300 454-2, EN 301 357-2	ELA 124a ELA 124b ELA 124c
Taiwan	TAF	EN 300 328, EN 300 220-1, EN 300 220-2, EN 300 220-3, 47 CFR FCC Part 15 Subpart C, EN 61000-3-2, EN 61000-3-3, CNS 13439, CNS 13783-1, CNS 14115, CNS 13438, AS/NZS CISPR 22, CNS 13022-1, IEC 61000-4-2/3/4/5/6/8/11, CNS 13022-2/3	Testing Laboratory 0363
Taiwan	BSMI	CNS 13438, CNS 13783-1, CNS 13439, CNS 14115	SL2-IS-E-0014 SL2-IN-E-0014 SL2-A1-E-0014 SL2-R1-E-0014 SL2-R2-E-0014 SL2-L1-E-0014
Canada	Industry Canada	3/10 meter Open Area Test Sites (IC 3991-3, IC 3991-4) / 3M Semi Anechoic Chamber (IC 6106) to perform RSS 212 Issue 1	IC 3991-3 IC 3991-4 IC 6106

** No part of this report may be used to claim or imply product endorsement by A2LA or any agency of the US Government.*

6 SETUP OF EQUIPMENT UNDER TEST

6.1 SETUP DIAGRAM

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

6.2 SUPPORT EQUIPMENT

No	Equipment	Model	Serial No.	FCC ID	Trade Name	Data Cable	Power Cord
1.	Notebook PC	2672 (X31)	99PBTKB	WLAN: ANO20030400LEG Bluetooth: ANO20020100MTN	IBM	N/A	AC I/P: Unshielded, 1.8m DC O/P: Unshielded, 1.8m with a core

Remark: *All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.*

Grounding: *Grounding was in accordance with the manufacturer's requirements and conditions for the intended use.*

7 LINE CONDUCTED & RADIATED EMISSION TEST

7.1 LIMIT

Maximum permissible level of Line Conducted Emission

Frequency (MHZ)	Class A (dBuV/m)		Class B (dBuV/m)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

Remark: *The lower limit shall apply at the transition frequency.*

Maximum permissible level of Common Mode Conducted Emission (Telecommunication Ports)

CLASS A

Frequency (MHz)	Voltage Limit (dBuV)		Current Limit (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	97 – 87	84 - 74	53 – 43	40 – 30
0.5 - 30.0	87	74	43	30

Remark: *The lower limit shall apply at the transition frequency.*

CLASS B

Frequency (MHz)	Voltage Limit (dBuV)		Current Limit (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	84 - 74	74 - 64	40 – 30	30 – 20
0.5 - 30.0	74	64	30	20

Remark: *1. The lower limit shall apply at the transition frequency.*
2. According to Note 3 on table 4 of EN 55022: 1998 standard, a relaxation of 10 dB over the frequency range of 6 MHz to 30 MHz is allowed for high-speed services having significant spectral density in this band. However, this relaxation is restricted to the common mode disturbance converted by the cable from the wanted signal.

Maximum permissible level of Radiated Emission measured at 10 meter

Frequency (MHz)	Class A (dBuV/m)	Class B (dBuV/m)
	Quasi-peak	Quasi-peak
30 – 230	40	30
230 - 1000	47	37

Remark: *The lower limit shall apply at the transition frequency.*

7.2 TEST PROCEDURE OF LINE CONDUCTED EMISSION

Procedure of Preliminary Test

- The EUT was set up as per the test configuration to simulate typical usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per EN 55022 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- Support equipment, if needed, was placed as per EN 55022.
- All I/O cables were positioned to simulate typical actual usage as per EN 55022.
- The test equipment EUT installed received AC power, 230VAC/50Hz, through a Line Impedance Stabilization Network (LISN), which supplied power source and was grounded to the ground plane.
- All support equipments received power from a second LISN.
- The EUT test program was started. Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.
- The Receiver scanned from 150kHz to 30MHz for emissions in each of the test modes.
- During the above scans, the emissions were maximized by cable manipulation.
- The test mode(s) described in Item 3.2 were scanned during the preliminary test.
- After the preliminary scan, we found the test mode described in Item 3.2 producing the highest emission level.
- The EUT configuration and cable configuration of the above highest emission level were recorded for reference of the final test.

Procedure of Final Test

- EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test.
- A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.
- The test data of the worst-case condition(s) was recorded.

7.3 TEST PROCEDURE OF COMMON MODE CONDUCTED EMISSION FOR TELECOMMUNICATION PORT

- Selecting ISN for unscreened cable or a current probe for screened cable to take measurement.
- The port of the EUT was connected to the remote side support equipment through the ISN/Current Probe and communication in normal condition.
- Making a overall range scan by using the test receiver controlled by controller and record at least six highest emissions for showing in the test report.
- Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.
- In case of measuring on the screened cable, the current limit shall be applied, otherwise the voltage limit should be applied.
- The following test mode was scanned during the preliminary test:

Not applicable, because EUT has no LAN port or modem port.

7.4 TEST PROCEDURE OF RADIATED EMISSION

Procedure of Preliminary Test

- The equipment was set up as per the test configuration to simulate typical usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane. When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- Support equipment, if needed, was placed as per EN 55022.
- All I/O cables were positioned to simulate typical usage as per EN 55022.
- The EUT received AC power source, 230VAC/50Hz, from the outlet socket under the turntable. All support equipments received power from another socket under the turntable.
- The antenna was placed at 10 meter away from the EUT as stated in EN 55022. The antenna connected to the Spectrum Analyzer via a cable and at times a pre-amplifier would be used.
- The Analyzer / Receiver quickly scanned from 30MHz to 1000MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
- The test mode(s) described in Item 3.2 were scanned during the preliminary test:
- After the preliminary scan, we found the test mode described in Item 3.2 producing the highest emission level.
- The EUT and cable configuration, antenna position, polarization and turntable position of the above highest emission level were recorded for the final test.

Procedure of Final Test

- EUT and support equipment were set up on the turntable as per the configuration with highest emission level in the preliminary test.
- The Analyzer / Receiver scanned from 30MHz to 1000MHz. Emissions were scanned and measured rotating the EUT to 360 degrees, varying cable placement and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
- Recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and only Q.P. reading is presented.
- The test data of the worst-case condition(s) was recorded.

7.5 TEST RESULTS

Powerline Conducted Emission

Operation Mode: Mode 1 **Test Date:** March 29, 2006

Temperature: 25°C **Humidity:** 55% RH

Tested by: Nan Tsai

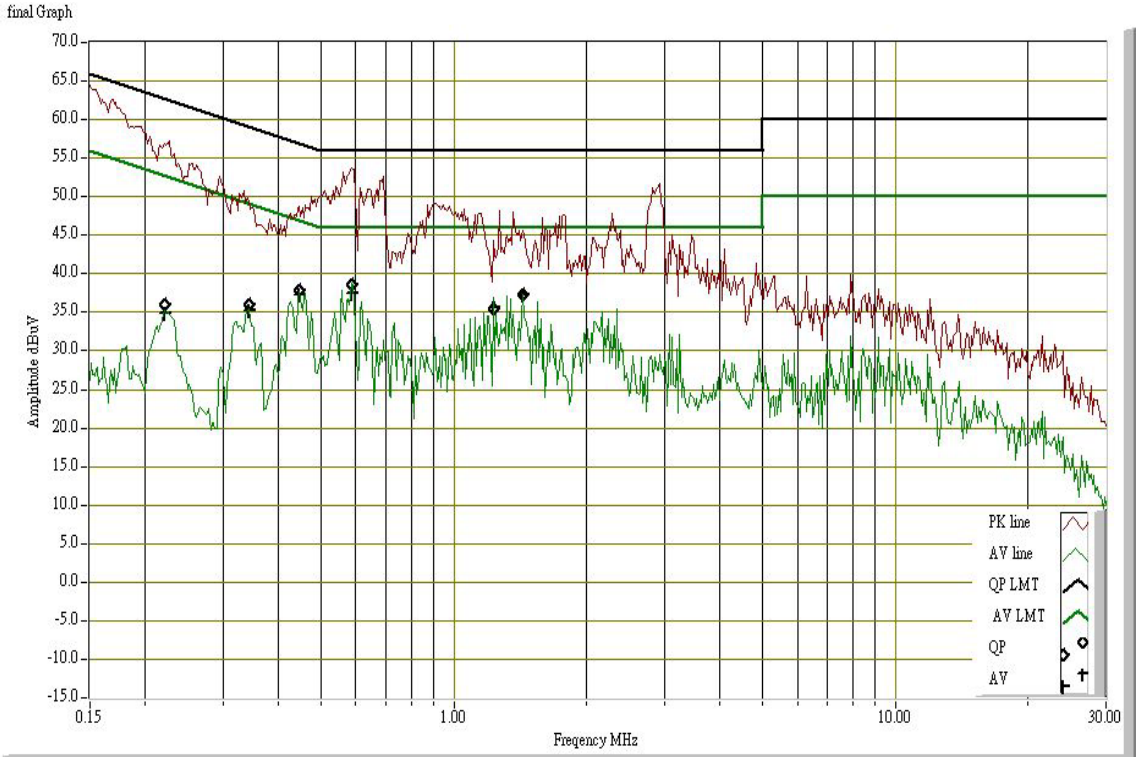
Freq. (MHz)	QP Reading (dBuV)	AV Reading (dBuV)	Corr. factor (dB)	QP Result (dBuV)	AV Result (dBuV)	QP Limit (dBuV)	AV Limit (dBuV)	QP Margin (dB)	AV Margin (dB)	Note
0.222	36.070	34.920	0.100	36.170	35.020	62.744	52.744	-26.574	-17.724	L1
0.344	36.090	35.180	0.100	36.190	35.280	59.106	49.106	-22.916	-13.826	L1
0.447	37.810	37.380	0.100	37.910	37.480	56.931	46.931	-19.021	-9.451	L1
0.586	38.550	37.440	0.100	38.650	37.540	56.000	46.000	-17.350	-8.460	L1
1.229	35.520	35.650	0.100	35.620	35.750	56.000	46.000	-20.380	-10.250	L1
1.430	37.340	37.270	0.100	37.440	37.370	56.000	46.000	-18.560	-8.630	L1
0.225	36.150	34.660	0.100	36.250	34.760	62.632	52.632	-26.382	-17.872	L2
0.450	34.820	33.310	0.100	34.920	33.410	56.875	46.875	-21.955	-13.465	L2
0.563	37.320	34.830	0.100	37.420	34.930	56.000	46.000	-18.580	-11.070	L2
1.442	33.950	33.330	0.100	34.050	33.430	56.000	46.000	-21.950	-12.570	L2
2.401	35.640	34.440	0.100	35.740	34.540	56.000	46.000	-20.260	-11.460	L2
11.610	36.200	34.820	0.732	36.932	35.552	60.000	50.000	-23.068	-14.448	L2

Remark:

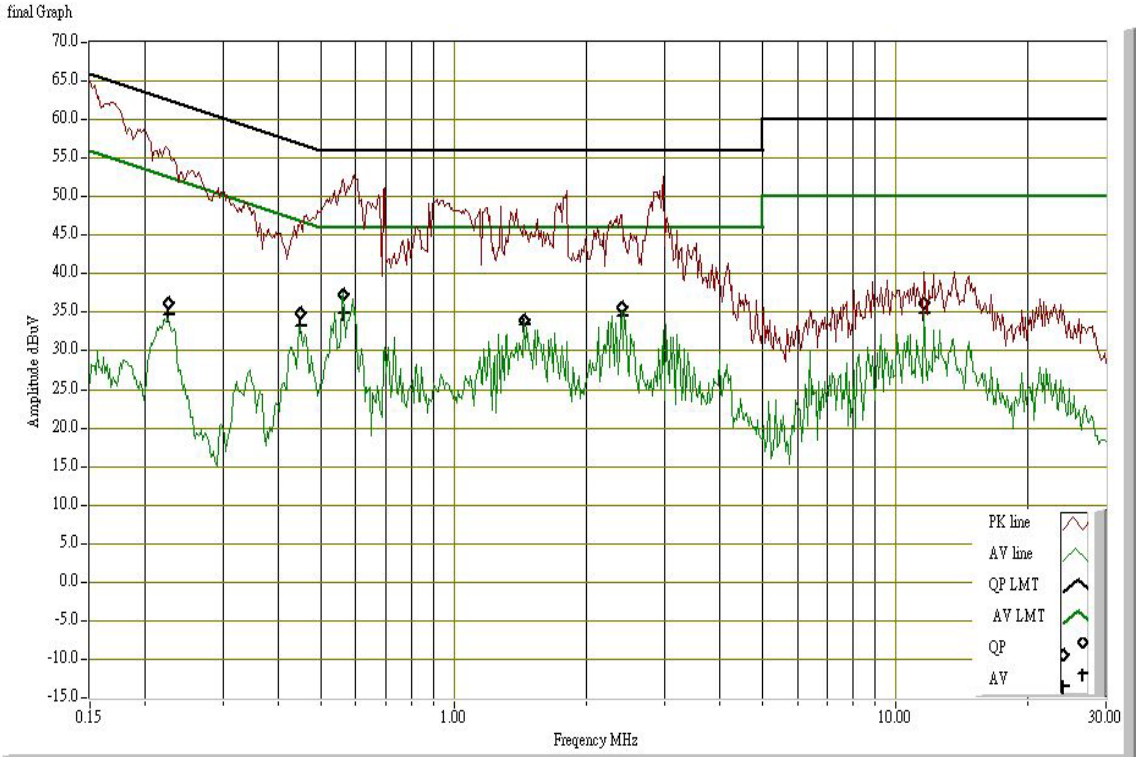
1. *Measuring frequencies from 0.15 MHz to 30MHz.*
2. *The emissions measured in frequency range from 0.15 MHz to 30MHz were made with an instrument using Quasi-peak detector and average detector.*
3. *The IF bandwidth of SPA between 0.15MHz and 30MHz was 10kHz; the IF bandwidth of Test Receiver between 0.15MHz and 30MHz was 9kHz;*
4. *L1 = Line One (Live Line) / L2 = Line Two (Neutral Line)*

Test Plots

Conducted emissions (Line 1)



Conducted emissions (Line 2)



Radiated Emission

Operation Mode: Mode 1 **Test Date:** March 23, 2006

Temperature: 26°C **Tested by:** Rex Lai

Humidity: 55% RH **Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Detector Mode (PK/QP)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit 10m (dBuV/m)	Margin (dB)
83.27	V	QP	14.90	10.02	24.92	30.00	-5.08
233.50	V	QP	10.54	13.39	23.93	37.00	-13.07
321.00	V	Peak	13.05	15.86	28.91	37.00	-8.09
424.51	V	Peak	9.65	18.20	27.85	37.00	-9.15
576.00	V	QP	7.23	21.44	28.67	37.00	-8.33
620.98	V	QP	6.80	22.13	28.93	37.00	-8.07
72.05	H	QP	5.60	9.08	14.68	30.00	-15.32
83.23	H	QP	16.10	10.01	26.11	30.00	-3.89
264.07	H	QP	8.30	14.31	22.61	37.00	-14.39
372.00	H	QP	6.30	17.21	23.51	37.00	-13.49
577.43	H	QP	6.30	21.47	27.77	37.00	-9.23
974.20	H	Peak	-1.83	26.15	24.32	37.00	-12.68

Remark:

1. *Measuring frequencies from 30MHz to 1GHz.*
2. *Radiated emissions measured in frequency range from 30MHz to 1000MHz were made with an instrument using Peak detector/Quasi-peak mode.*
3. *Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
4. *The IF bandwidth of SPA between 30MHz and 1GHz was 100 kHz.*

8 POWER HARMONICS TEST

Port : AC mains

Basic Standard : EN 61000-3-2 (2000)

Limits : ☐ CLASS A; ☐ CLASS B; ☐ CLASS C; ☒ CLASS D

Tested by : Nan Tsai

Temperature : 25°C

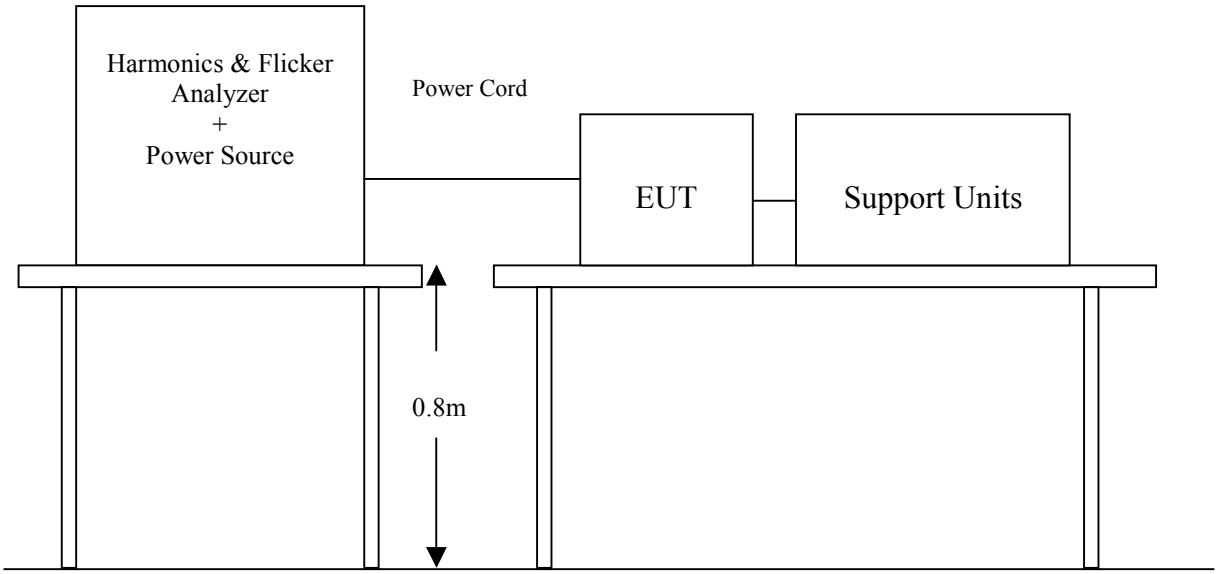
Humidity : 55% RH

Limit:

Limits for Class A equipment	
Harmonics Order n	Max. permissible harmonics current A
Odd harmonics	
3	2.30
5	1.14
7	0.77
9	0.40
11	0.33
13	0.21
15<=n<=39	0.15x15/n
Even harmonics	
2	1.08
4	0.43
6	0.30
8<=n<=40	0.23x8/n

Limits for Class D equipment		
Harmonics Order n	Max. permissible harmonics current per watt mA/W	Max. permissible harmonics current A
Odd harmonics only		
3	3.4	2.30
5	1.9	1.14
7	1.0	0.77
9	0.5	0.40
11	0.35	0.33
13	0.30	0.21
15<=n<=39	3.85/n	0.15x15/n

Block Diagram of Test Setup:



Test Procedure:

a. The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the maximum harmonic components under normal operating conditions for each successive harmonic component in turn.

b. The correspondent test program of test instrument to measure the current harmonics emanated from EUT is chosen. The measure time shall be not less than the time necessary for the EUT to be exercised.

Test Result:

No non-compliance noted.

Remark: According to clause 7 of EN 61000-3-2, equipment with a rated power of 75W or less, no limits apply. The test result is only for reference.

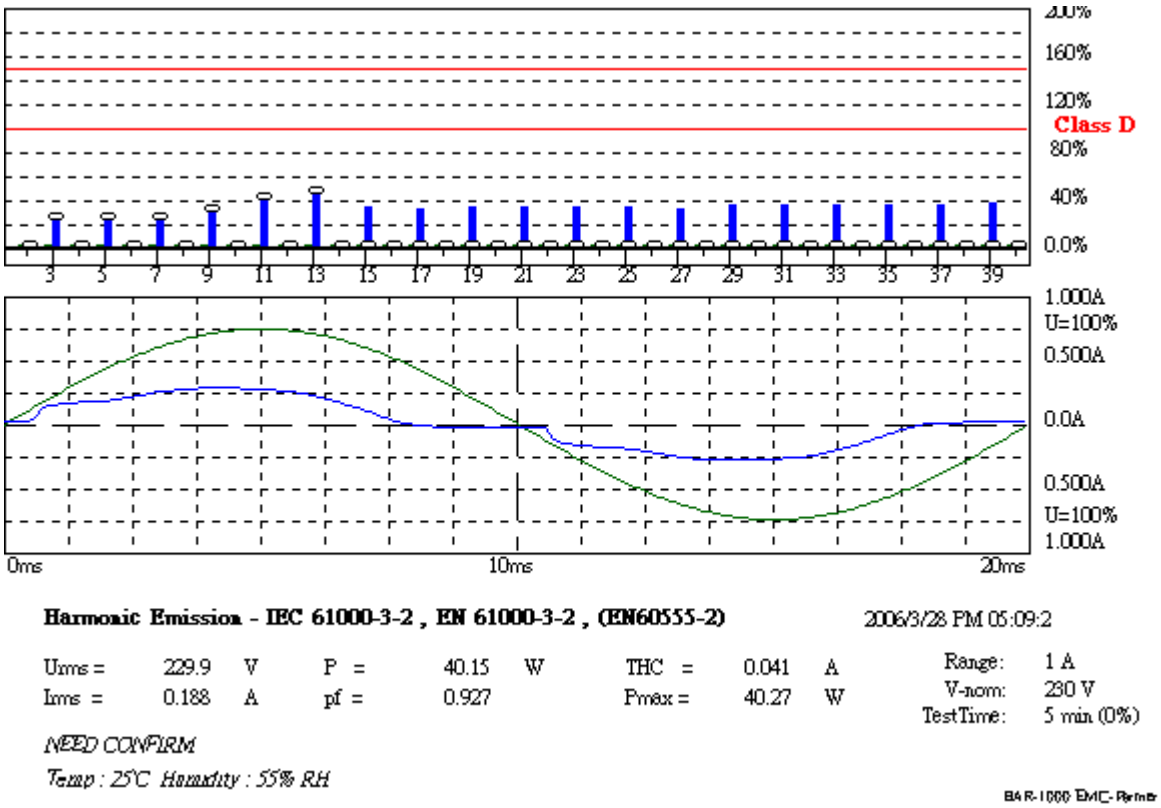
Harmonic Emission - IEC 61000-3-2 , EN 61000-3-2 , (EN60555-2)

Comply: IEC 61000-3-2 Ed.2.1 :2001 (incl. Amd.14) - IEC 61000-4-7 Ed.1.0 :1991

LEADMAN

HARCS Setup File : unnamed
HARCS Report File : unnamed

	USB FLOPPY DISK DRIVE
	USBFL-BK
	Nan Tsai
Remarks	Temp : 25'C Humidity : 55% RH



Full Bar : Actual Values
Empty Bar : Maximum Values
Blue : Current , Green : Voltage , Red : Failed

9 POWER VOLTAGE FLUCTUATION / FLICKER TEST

Port : AC mains

Basic Standard : EN 61000-3-3 (1995 + A1: 2001)

Limits : 5 of EN 61000-3-3

Tested by : Nan Tsai

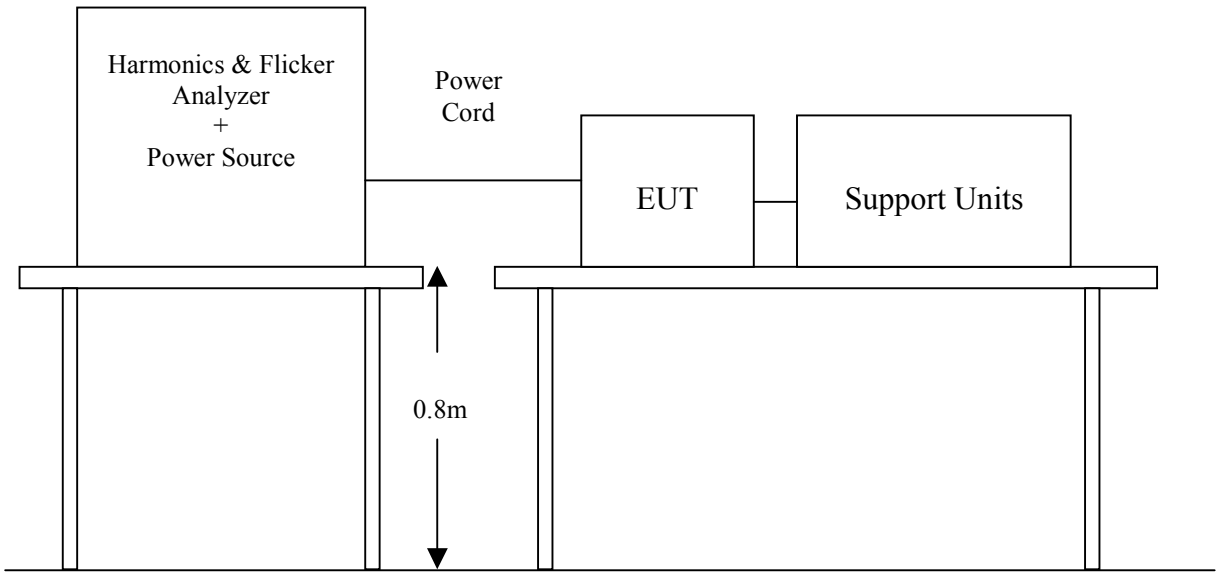
Temperature : 25°C

Humidity : 55% RH

Limit:

TEST ITEM	LIMIT	REMARK
P_{st}	1.0	P_{st} means short-term flicker indicator.
P_{lt}	0.65	P_{lt} means long-term flicker indicator.
T_{dt} (ms)	500	T_{dt} means maximum time that dt exceeds 3 %.
d_{max} (%)	4%	d_{max} means maximum relative voltage change.
dc (%)	3.3%	dc means relative steady-state voltage change

Block Diagram of Test Setup:



Test Procedure:

a. The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the most unfavorable sequence of voltage changes under normal operating conditions.

b. During the flick measurement, the measure time shall include that part of whole operation cycle in which the EUT produce the most unfavorable sequence of voltage changes. The observation period for short-term flicker indicator is 10 minutes and the observation period for long-term flicker indicator is 2 hours.

Test Result:

No non-compliance noted.

Measurement

LEADMAN Date : 2006/3/28 PM 05:23:3 V4.00

File :

USB FLOPPY DISK DRIVE
USBFL-BK
Nan Tsai
Remarks Temp : 25'C Humidity : 55% RH

Urms = 229.9V Freq = 49.935 Range: 0.5 A
Irms = 0.155A Ipk = 0.268A cf = 1.731
P = 32.10W S = 35.53VA pf = 0.903

Test - Time : 1 x 10min = 10min (0 %)

LIN (Line Impedance Network) : L: 0.24ohm +j0.15ohm N: 0.16ohm +j0.10ohm

Limits : Plt : 0.65 Pst : 1.00
dmax : 4.00 % dc : 3.30 %
dtLim: 3.30 % dt>Lim: 500ms

Plt = 0.000

	Pst	P50s	P10s	P3s	P1s	P0.1s	Fli	dmax	dc
	dt>Lim								
								[%]	[%]
	[ms]								
1	0.000	0.000	0.000	0.000	0.000	0.052	0.000	0.000	0.000
	0.000								

10 ELECTROSTATIC DISCHARGE (ESD) IMMUNITY TEST

Port : Enclosure

Basic Standard : IEC/EN 61000-4-2

Test Level : ± 8 kV (Air Discharge)
± 4 kV (Contact Discharge)
± 4 kV (Indirect Discharge)

Performance Criterion : B (Standard Required)

Tested by : Nan Tsai

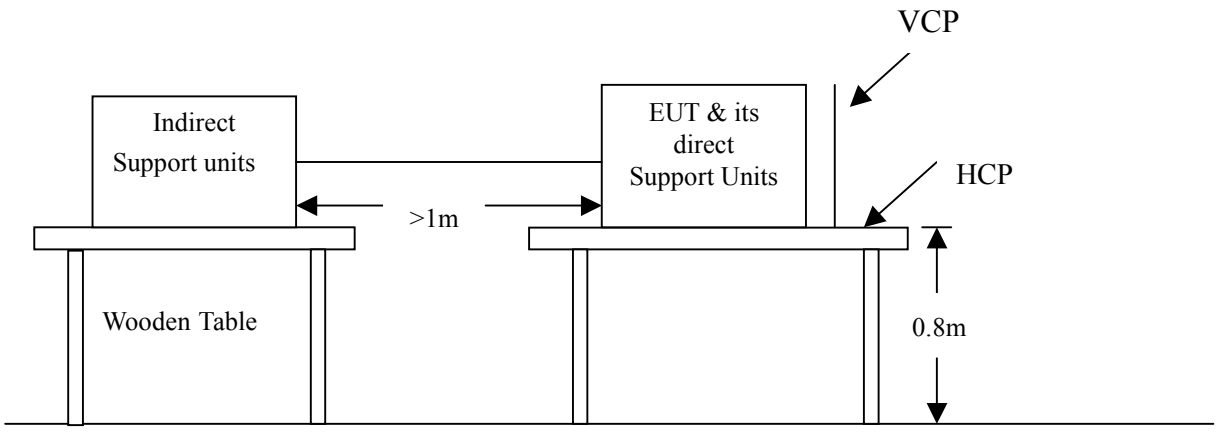
Temperature : 25°C

Humidity : 55% RH

Pressure : 1019mbar

Block Diagram of Test Setup:

(The 470 k ohm resistors are installed per standard requirement.)



Ground Reference Plane

Test Procedure:

1. The EUT was located 0.1 m minimum from all side of the HCP.
2. The indirect support units were located 1 m minimum away from the EUT, but direct support unit was/were located at same location as EUT on the HCP and keep at a distance of 10 cm with EUT.
3. A scroll 'H' test program was loaded and executed in Windows XP mode.
4. The EUT sent above message to LCD Panel of Notebook PC and related peripherals through the test.
5. Active the communication function if the EUT with such port(s).
6. As per the requirement of EN 55024; applying direct contact discharge at the sides other than front of EUT at minimum 50 discharges (25 positive and 25 negative) if applicable, can't be applied direct contact discharge side of EUT then the indirect discharge shall be applied. One of the test points shall be subjected to at least 50 indirect discharge (contact) to the front edge of horizontal coupling plane.
7. Other parts of EUT where it is not possible to perform contact discharge then selecting appropriate points of EUT for air discharge, a minimum of 10 single air discharges shall be applied.
8. The application of ESD to the contact of open connectors is not required.
9. The EUT direct connection units also need to be applied ESD at the port of EUT cable connected.
10. To simulate a single ESD event (either by air or by contact discharge), the charge on the EUT shall be removed prior to each applied ESD pulse. The charge on the metallic point or part to which the ESD pulse is to be applied, for example, connector shells, battery charge pins, metallic antennae, shall be removed prior to each applied ESD test pulse. When one or several metallic accessible parts are subject to the ESD test, the charge shall be removed from the point where the ESD pulse is to be applied, as no guarantee can be given about the resistance between this and other accessible points on the product.
11. Putting a mark on EUT to show tested points. The following test condition was followed during the tests.

Remark: As per IEC/EN 61000-4-2, two 470k bleed resistors cable is connected between the EUT and HCP during the test applicable for power ungrounded or battery operating unit only.

The electrostatic discharges were applied as follows:

Amount of discharge	Voltage	Coupling	Test Result (Criterion)
Min. 20 / Point	± 8 kV	Air Discharge	A
Min. 50 / Point	± 4 kV	Contact Discharge	NDP
Min. 50 / Point	± 4 kV	Indirect Discharge HCP (Front)	A
Min. 50 / Point	± 4 kV	Indirect Discharge VCP (Right)	A
Min. 50 / Point	± 4 kV	Indirect Discharge VCP (Left)	A
Min. 50 / Point	± 4 kV	Indirect Discharge VCP (Back)	A

Remark: *1. For tested points to EUT, refer to the enclosed pages. Be aware that the red mark is for air discharge.*
2. "NDP" means that no discharge point had been occurred during that particular coupling method.

Performance & Result:

☒ **Criteria A:** The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.

☐ **Criteria B:** The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

☐ **Criteria C:** Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

☒ **PASS** ☐ **FAIL**
Observation: No function degraded during the tests.

The Tested Points of EUT

11 RADIATED ELECTROMAGNETIC FIELD IMMUNITY TEST

Port : Enclosure

Basic Standard : IEC/EN 61000-4-3

Requirements : 3 V/m / with 80% AM. 1 kHz Modulation.

Performance Criterion : A (Standard Required)

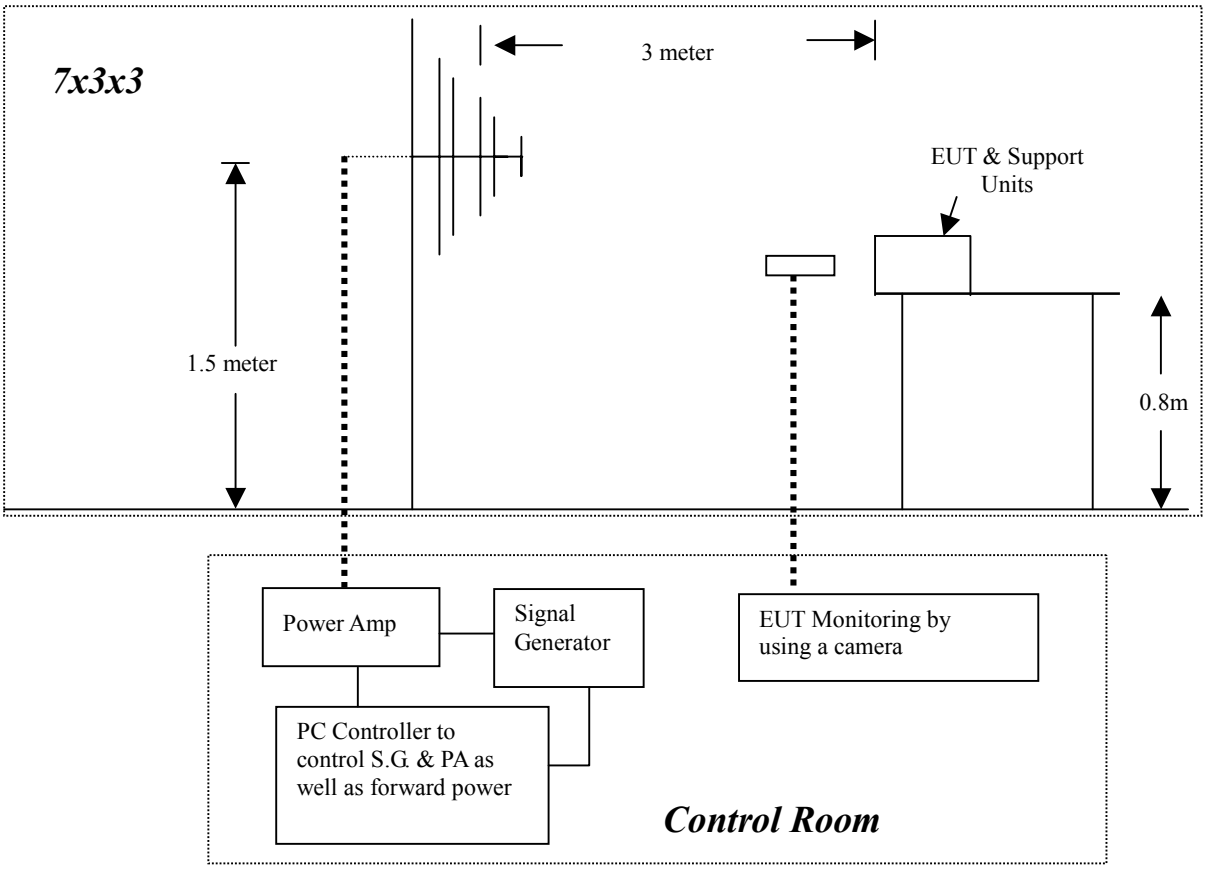
Tested by : Nan Tsai

Temperature : 25°C

Humidity : 55% RH

Pressure : 1019mbar

Block Diagram of Test Setup:



Test Procedure:

1. The EUT was located at the edge of supporting table keep 3 meter away from transmitting antenna, it just the calibrated square area of field uniformity. The support units were located outside of the uniformity area, but the cable(s) connected with EUT were exposed to the calibrated field as per IEC/EN 61000-4-3.
2. Setting the testing parameters of RS test software per IEC/EN 61000-4-3.
3. Performing the pre-test at each side of with double specified level (6V/m) at 4% steps.
4. From the result of pre-test in step 5, choice the worst side of EUT for final test from 80 MHz to 1000 MHz at 1% steps.
5. Recording the test result in following table.
6. It is not necessary to perform test as per annex A of EN 55024 if the EUT doesn't belong to ITE product.

Preliminary test conditions:

Test level : 6V/m
Steps : 4 % of fundamental
Dwell Time : 3 sec

Freq. Range (MHz)	Field	Modulation	Polarity	Position	Test Result (Criterion)
80-1000	6V/m	Yes	H	Front	A
80-1000	6V/m	Yes	V	Front	A
80-1000	6V/m	Yes	H	Right	A
80-1000	6V/m	Yes	V	Right	A
80-1000	6V/m	Yes	H	Back	A
80-1000	6V/m	Yes	V	Back	A
80-1000	6V/m	Yes	H	Left	A
80-1000	6V/m	Yes	V	Left	A

Final test conditions:

Test level : 3V/m
Steps : 1 % of fundamental
Dwell Time : 3 sec

Freq. Range (MHz)	Field	Modulation	Polarity	Position	Test Result (Criterion)
80-1000	3V/m	Yes	H	Front	A
80-1000	3V/m	Yes	V	Front	A

Performance & Result:

☒ **Criteria A:** The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.

☐ **Criteria B:** The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

☐ **Criteria C:** Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

☒ **PASS** ☐ **FAIL**
Observation: No function degraded during the tests.

12 FAST TRANSIENTS/BURST IMMUNITY TEST

Port : On Power Supply Lines and Data Line

Basic Standard : IEC/EN 61000-4-4

Requirements : ± 1 kV for Power Supply Line
± 0.5kV for LAN Cables
± 0.5kV for Lines Cables

Performance Criterion : B (Standard Required)

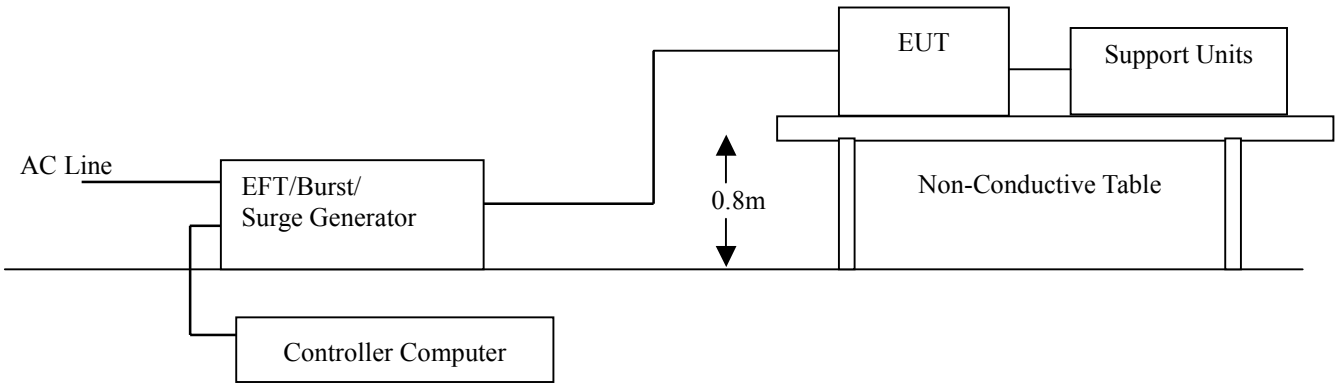
Tested by : Nan Tsai

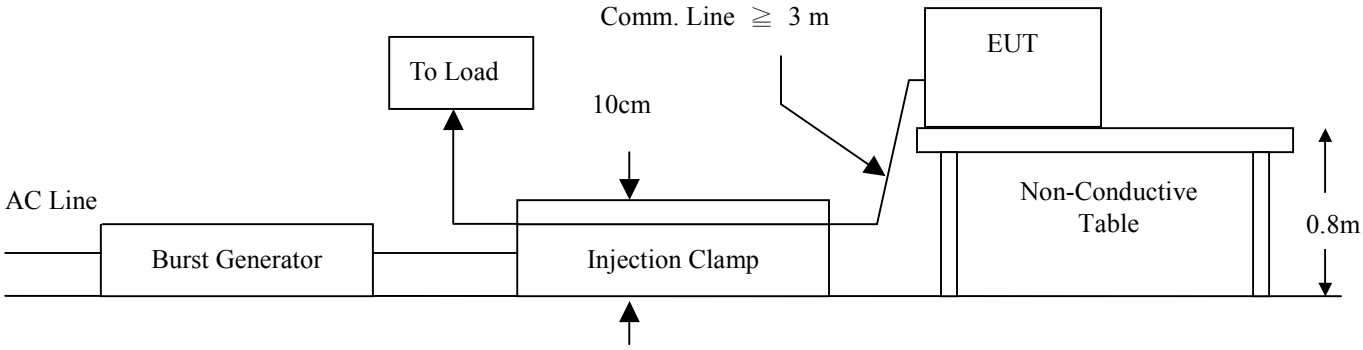
Temperature : 25°C

Humidity : 55% RH

Pressure : 1019mbar

Block Diagram of Test Setup:





Test Procedure:

1. The EUT and support units were located on a wooden table 0.8 m away from ground reference plane.
2. A 1.0 meter long power cord was attached to EUT during the test.
3. The length of communication cable between communication port and clamp was keeping within 1 meter.
4. Injected test voltage to the EUT ports from minimum to standard request or client request.
5. Recording the test result as shown in following table.

Test conditions:

Impulse Frequency : 5kHz
Tr/Th : 5/50ns
Burst Duration : 15ms
Burst Period : 3Hz

Inject Line	Voltage kV	Inject Method	Test Result (Criterion)
☒ Line	±1	Direct	A
☒ Neutral	±1	Direct	A
☒ PE	±1	Direct	A
☒ Line + Neutral	±1	Direct	A
☒ L + PE	±1	Direct	A
☒ N + PE	±1	Direct	A
☒ L + N + PE	±1	Direct	A
☐ RJ45 port (LAN cable)	±0.5	Clamp	N/A
☐ RJ11 port (Line cable)	±0.5	Clamp	N/A

Performance & Result:

☒ **Criteria A:** The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.

☐ **Criteria B:** The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

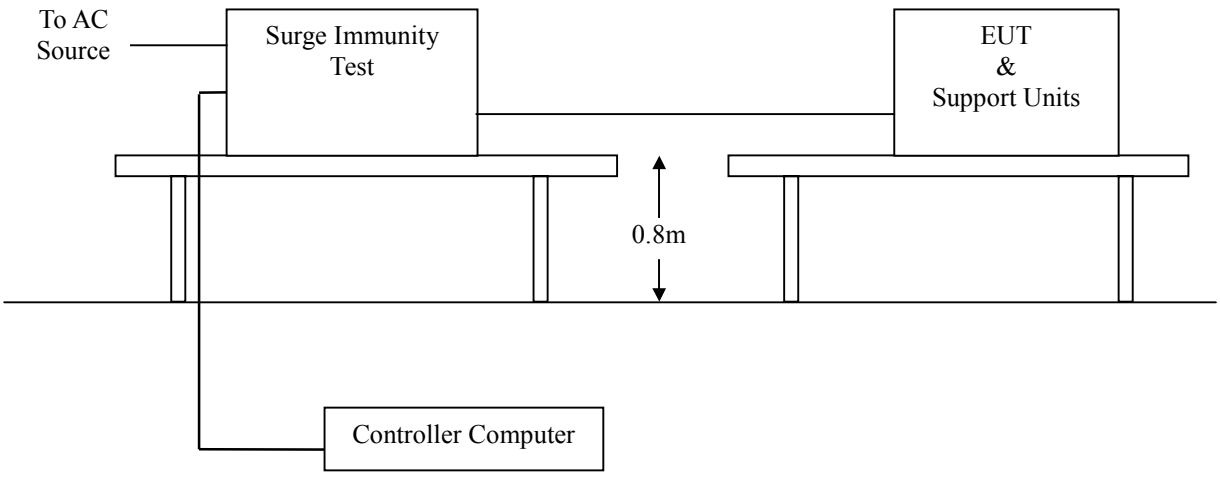
☐ **Criteria C:** Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

☒ **PASS** ☐ **FAIL**
Observation: No function degraded during the tests.

13 SURGE IMMUNITY TEST

Port	**:**	Power Cord
Basic Standard	**:**	IEC/EN 61000-4-5
Requirements	**:**	± 1 kV (Line to Line) ± 2 kV (Line to Ground) ± 1 kV (T, R to Ground of Telecommunication port)
Performance Criterion	**:**	B (Standard Required)
Tested by	**:**	Nan Tsai
Temperature	**:**	25°C
Humidity	**:**	55% RH
Pressure	**:**	1019mbar

Block Diagram of Test Setup:



Test Procedure:

1. The EUT and support units were located on a wooden table 0.8 m away from ground floor.
2. Injected test voltage to the EUT ports from minimum to standard request or client request.
3. Recording the test result as shown in following table.

Test conditions:

Voltage Waveform : 1.2/50 *u*s
Current Waveform : 8/20 *u*s
Polarity : Positive/Negative
Phase angle : 0^o, 90^o, 270^o
Number of Test : 5

Coupling Line	Voltage (kV)	Polarity	Coupling Method	Test Result (Criterion)
☒ Line + Neutral	1	Pos./ Neg.	Capacitive	A
☒ L + PE	2	Pos./ Neg.	Capacitive	A
☒ N + PE	2	Pos./ Neg.	Capacitive	A
☐ T, R-Ground	1	Pos./ Neg.	Capacitive	N/A
☐ L1, 2, 3, 4-G	1	Pos./ Neg.	Capacitive	N/A

Performance & Result:

☒ **Criteria A:** The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.

☐ **Criteria B:** The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

☐ **Criteria C:** Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

☒ **PASS** ☐ **FAIL**
Observation: No function degraded during the tests.

14 CONDUCTED DISTRBANCE/INDUCED RADIO-FREQUENCY FIELD IMMUNITY TEST

Port : AC Port and Data Line

Basic Standard : IEC/EN 61000-4-6

Requirements : 3 V with 80% AM. 1 kHz Modulation.

Injection Method : CDN-M3 / CDN-M2 for Power Cord
CDN-T4 for LAN Cable

Performance Criterion : A (Standard Required)

Tested by : Nan Tsai

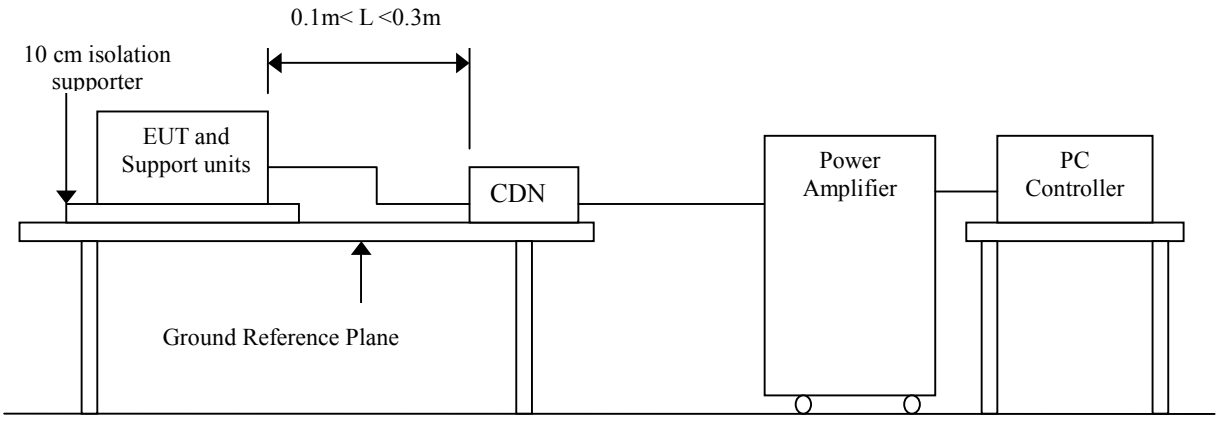
Temperature : 25°C

Humidity : 55% RH

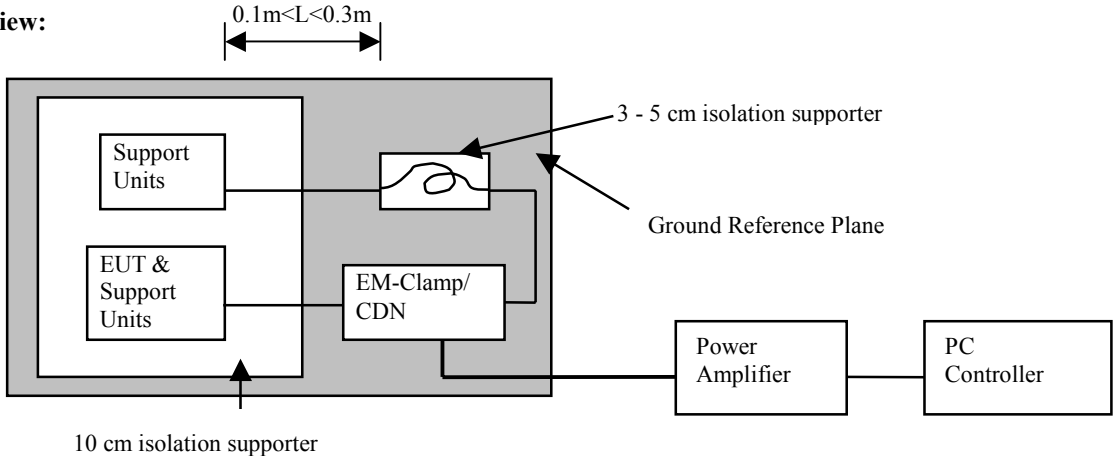
Pressure : 1019mbar

Block Diagram of Test Setup:

Side View:



Top View:



Test Procedure:

1. The EUT and support units were located at a ground reference plane with the interposition of a 0.1 m thickness insulating support and the CDN was located on GRP directly.
2. Setting the testing parameters of CS test software as per IEC/EN 61000-4-6.
3. Recording the test result in following table.

Test conditions:

Frequency Range : 0.15MHz-80MHz
Frequency Step : 1% of fundamental
Dwell Time : 3 sec

☒ **CDN:** ☐ **FCC-801-M2-16A** / ☒ **FCC-801-M3-16A**

☐ **FCC-801-T4** / ☐ **FCC-801-T2**

Range (MHz)	Field	Modulation	Test Result (Criterion)
0.15-80	3V	Yes	A

Performance & Result:

☒ **Criteria A:** The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.

☐ **Criteria B:** The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

☐ **Criteria C:** Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

☒ **PASS** ☐ **FAIL**
Observation: No function degraded during the tests.

15 POWER FREQUENCY MAGNETIC FIELD IMMUNITY TEST

Port : Enclosure

Basic Standard : IEC/EN 61000-4-8

Requirements : 1 A/m

Performance Criterion : A (Standard Required)

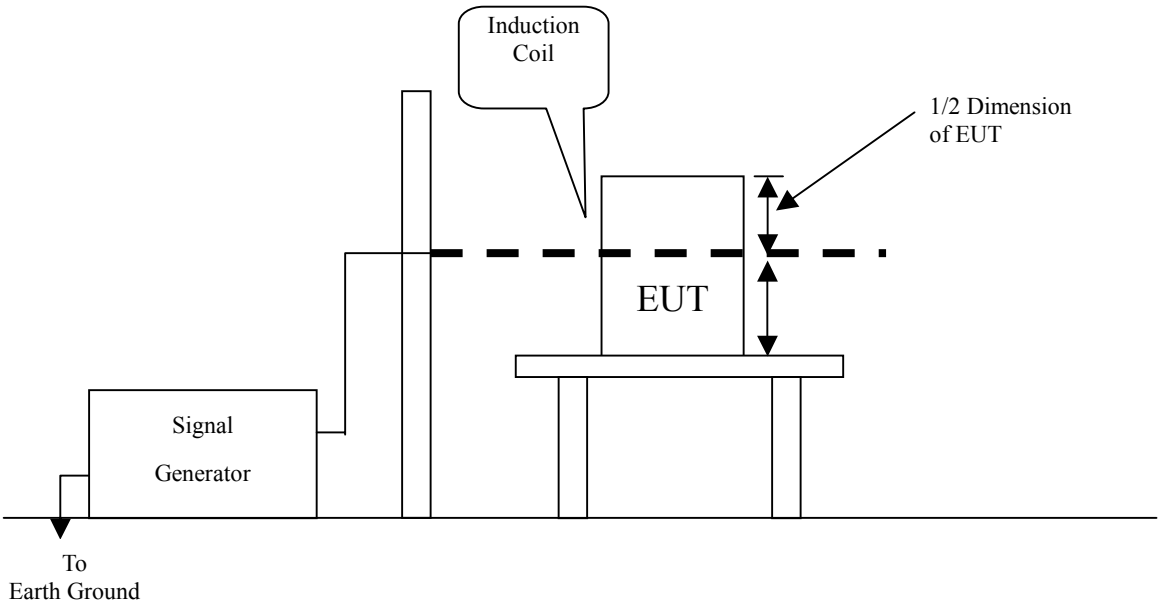
Tested by : Nan Tsai

Temperature : 25°C

Humidity : 55% RH

Pressure : 1019mbar

Block Diagram of Test Setup:



Test Procedure:

1. The EUT and support units were located on Ground Reference Plane with the interposition of a 0.1 m thickness insulation support.
2. Putting the induction coil on horizontal direction. (X direction)
3. Rotating the induction coil by 90° (Y direction)
4. Rotating the induction coil by 90° again (Z direction)
5. Recording the test result as shown in following table.

Test conditions:

Field Strength: 1A/m
Power Freq.: 50Hz
Orientation: X, Y, Z

Orientation	Field	Test Result (Criterion)
X	1A/m	A
Y	1A/m	A
Z	1A/m	A

Performance & Result:

☒ **Criteria A:** The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.

☐ **Criteria B:** The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

☐ **Criteria C:** Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

☒ **PASS** ☐ **FAIL**
Observation: No function degraded during the tests.

16 VOLTAGE DIPS / SHORT INTERRUPTIONS

Port : AC mains

Basic Standard : IEC/EN 61000-4-11

Requirement : PHASE ANGLE 0, 45, 90, 135, 180, 225, 270, 315 degrees

	Test Level % U_T	Reduction (%)	Duration (periods)	Performance Criteria
Voltage Dips	<5	>95	0.5	B
	70	30	25	C

	Test Level % U_T	Reduction (%)	Duration (periods)	Performance Criteria
Voltage Interceptions	<5	>95	250	C

Test Interval : Min. 10 sec.

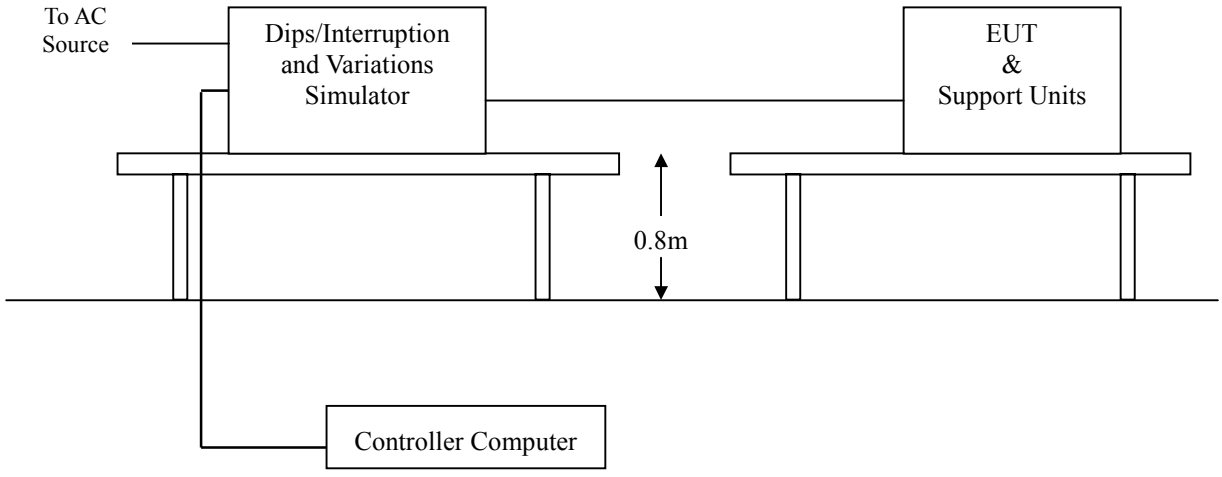
Tested by : Nan Tsai

Temperature : 25°C

Humidity : 55% RH

Pressure : 1019mbar

Block Diagram of Test Setup:



Test Procedure:

1. The EUT and support units were located on a wooden table, 0.8 m away from ground floor.
2. Setting the parameter of tests and then Perform the test software of test simulator.
3. Conditions changes to occur at 0 degree crossover point of the voltage waveform.
4. Recording the test result in test record form.

Test conditions

The duration with a sequence of three dips/interruptions with interval of 10 s minimum (Between each test event)

Voltage Dips:

Test Level % U_T	Reduction (%)	Duration (periods)	Observation	Meet Performance Criteria
0	100	0.5	Normal	A
70	30	25	Normal	A

Voltage Interruptions:

Test Level % U_T	Reduction (%)	Duration (periods)	Observation	Meet Performance Criteria
0	100	250	Normal	A

Performance & Result:

Criteria A: The apparatus continues to operate as intended. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance.

Criteria B: The apparatus continues to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. In some cases the performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed.

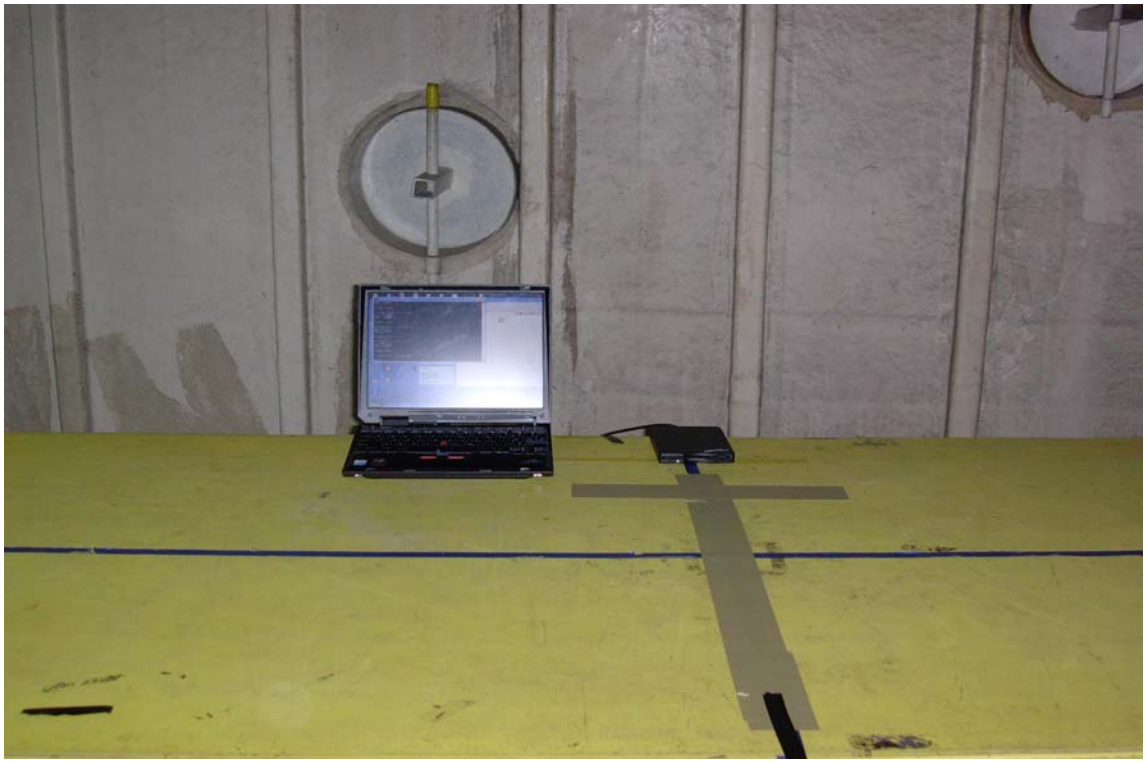
Criteria C: Temporary loss of function is allowed, provided the functions self recoverable or can be restored by the operation of controls.

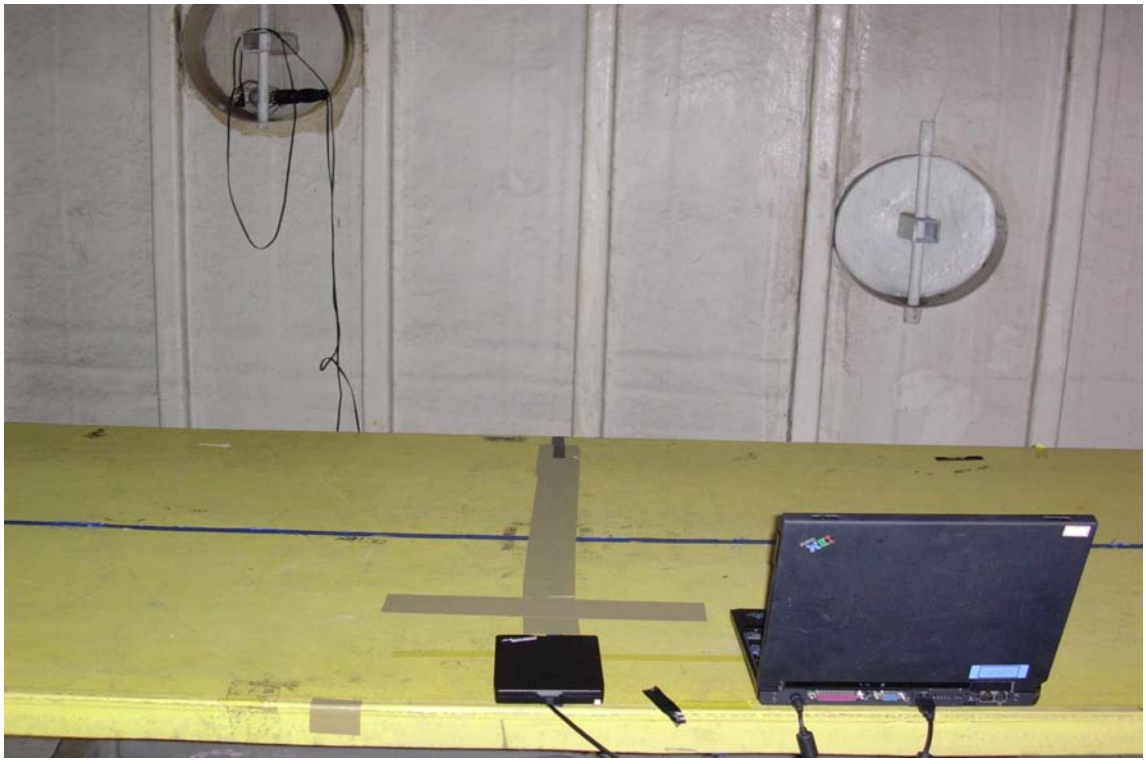
☒ **PASS** ☐ **FAIL**

APPENDIX I –
PHOTOGRAPHS OF TEST SETUP

LINE CONDUCTED EMISSION TEST (EN 55022)

RADIATED EMISSION TEST (EN 55022)





POWER HARMONIC & VOLTAGE FLUCTUATION / FLICKER TEST (EN 61000-3-2/EN 61000-3-3)

ELECTROSTATIC DISCHARGE TEST (EN 61000-4-2)

RADIATED ELECTROMAGNETIC FIELD TEST (EN 61000-4-3)

FAST TRANSIENTS/BURST TEST (EN 61000-4-4)

SURGE IMMUNITY TEST (EN 61000-4-5)

CONDUCTED DISTURBANCE, INDUCED BY RADIO-FREQUENCY FIELDS TEST (EN 61000-4-6)

POWER FREQUENCY MAGNETIC FIELD IMMUNITY TEST (EN 61000-4-8)

VOLTAGE DIPS / INTERRUPTION TEST (EN 61000-4-11)